

SYSTEM AND METHOD FOR STATISTICAL
DESIGN OF ULTRASOUND
PROBE AND IMAGING SYSTEM

ABSTRACT OF THE DISCLOSURE

[0092] A system and method for statistical design of an ultrasound probe and imager system, and an associated graphical user interface for selecting input parameters to be used in an ultrasound simulation. The process and computer code allow the performance of a probe and imager combination to be specified and jointly optimized in image quality terms. The designs produced optimize both the image quality and other CTQ (critical to quality) parameters, such as the distribution of regulatory power indices and mechanical index. These CTQs indirectly affect image quality through their effect on patient dose. The Transducer Design Advisor incorporates a graphical user interface for facilitating selection of a parameter set to be used in the simulation. The user selects a desired parameter set by navigating across and interacting with a succession of windows. The user specifies various geometric characteristics of the transducer and how the user wants to simulate the imager system. Finally, the user specifies weights for the various CTQs at different depths. Based on these inputs, the Transducer Design Advisor creates the files needed by the ultrasound simulator.